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**Gender, Transnational Networks and Remittances:  
Evidence from Germany**

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# **Gender, Transnational Networks and Remittances: Evidence from Germany**

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## **Abstract**

Remittances from Germany are substantial. Cross-border transfers to family and friendship networks outside Germany are not only made by foreigners. Many naturalized migrants send money home as well. Here, we focus on transnational networks and gender-specific determinants of remittances from the senders' perspective, based on data from the German Socio-Economic Panel Study (SOEP) for the years 2001-2006. Our findings show, above all, that foreign women remit less money than foreign men. Using information on the social network in the home country we find, first, that the social network abroad explains part of gender differences in remittance behavior. Second, employing gender interaction terms for the social network effects suggests that remittance behavior is affected by traditional gender roles. Third, the migrant's social integration in the destination country matters. Remittance decisions of naturalized migrants do not show the aforementioned gender effect. (138 words)

JEL-classification: F24, J16, D13

Keywords: Remittances, Gender, Foreigners, Naturalized Migrants

## 1 Introduction

The literature on remittances is growing. The renaissance of research on this topic is at least partly the result of increasing pressure to reduce poverty internationally (Guarnizo 2003, The World Bank 2005, 2008a, 2008b). Migration and the existence of social networks in the home country are important preconditions for remittances. These international social networks might influence migrants' social integration in both their home and destination country. In addition, the existence of international social networks might lead to a set of gender-specific labor divisions within the international household.

Standard economic theory on remittances is based on the analysis of international labor migration. Within this context, labor migration is usually motivated by labor income differences between the migrant's destination and home country. Nevertheless, a growing strand of this literature considers household characteristics (Funkhouser 1992) and family ties (Mincer 1978, Root/De Jong 1991) as important aspects of migration. So far, two strands of literature on remittances have emerged: first, models that assume altruism as the driving force behind remittances, and second, models that consider the existence of international intra-family contracts for insurance and investment (Lucas/Stark 1985, Stark 1995, Rosenzweig 1988, Poirine 1997, Foster/Rosenzweig 2001, Agarwal/Horowitz 2002). Typically, differences in gender roles are not analyzed. Important steps to integrate a gender perspective into the literature on remittances have been taken by empirical economists (Portes 1997, Pessar/Mahler 2003, Sørensen 2005, Ramirez/Dominguez/Morais 2005, Piper 2005, Orozco/Lowell/Schneider 2006, Carling 2008).

Germany is one of the most important countries sending remittances. About seven million foreigners currently live in Germany. Almost half of them are women.<sup>1</sup> Due to the existing legal framework, many of the people with foreign citizenship living in Germany did not personally experience migration—they were born in their destination country. At the same time, many Germans do have a personal migration history: they were born as foreigners and acquired German citizenship later in life. These differences in personal migration history might be reflected in their social lives in the destination country, as well as in their international social networks. In general, the acquisition of German citizenship increases the

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<sup>1</sup> While the total number of foreigners living in Germany has decreased over the last decade, female migration to Germany has increased. Today, women make up 48.8% of all foreigners living in Germany, although the proportion varies significantly by country of origin (Federal Statistical Office 2009).

chances of family reunification in Germany and of access to the welfare system. Consequently, the individual legal situation of the migrant should affect the household composition and the social network not only in the destination but also in the home country.

Studies on remittances from Europe, especially from Germany, are rare. And while there is increasing interest in several specific aspects of remittances—such as the reduction of transaction costs for international banking services, economic development, and types of remittances—gender issues are only just beginning to play a role in the debate. Up to now, the research has failed to produce a study that addresses both social integration and gender-specific determinants of remittances from Germany. We seek to fill this gap by investigating whether different groups of migrants such as foreigners and Germans with a migration background vary with respect to their remittance decisions.

Studies on remittances from Germany usually focus on foreigners, use a gender dummy, and come to the result that men remit more money than women, even after controlling for income (Merkle/Zimmermann 1992, Oser 1995, Holst/Schrooten 2006, Holst/Schaefer/Schrooten 2008).<sup>2</sup> The approach of explaining these differences by the existing networks and traditional gender roles is relatively new, and only a few studies are known to us that have taken these ideas into account. Here we take the structure and size of the international social network as well as the acquisition of the German citizenship as indicators for social integration. Our analysis is based on pooled data from the years 2001-2006 provided by the German Socio-Economic Panel (SOEP).<sup>3</sup>

The paper is organized as follows. Section 2 provides insight into the determinants of remittances, social integration, and international networks from a conceptual point of view. In Section 3, the data set, the general estimation approach, and the variables employed are explained. The results of the econometric models are discussed in Section 4. The conclusions (Section 5) present not only policy recommendations but also potentially fruitful directions for further research.

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<sup>2</sup> Studies analyzing remittances in the context of savings support this view (Sinning 2007).

<sup>3</sup> For the SOEP see Wagner et al. (2007).

## 2 Traditional Theories on Remittances and their Limits

Seminal work on remittances was done by Lucas/Stark (1985), Stark (1995), and Funkhouser (1995).<sup>4</sup> Their basic microeconomic models distinguish between altruism and intra-family contracting. The idea that altruism might play the dominant role in remittances is rooted in the assumption that an individual's behavior depends not only on his or her own needs, but also on the needs of other household or network members (Lucas/Stark 1985, Stark 1995). A second class of models focuses on the migrant's family as the key decision-making unit. Within this framework, the existence of an intra-family contract, either to reduce uncertainty or to finance investment, is assumed. In general, these kinds of models consider the family to reduce uncertainty and therefore to be a substitute for a smoothly functioning insurance and financial sector in the remitter's home country. Important factors that influence the decision to remit money are the share of migration costs covered by the migrant and the relative bargaining power of the non-migrant. Models relying on the investment motive argue that migration costs related to the creation of human capital and education are covered by the family through an intra-family loan (Poirine 1997). These theoretical models are tested empirically using the age of the migrant, education, length of the stay abroad, migrant's labor income, and household size in the destination country as explanatory variables. According to theoretical models relying on insurance and investment, there is no reason for a decrease in remittances with the length of stay. In addition, better education should lead to higher remittances. The greater the distance from the family, the higher and the more likely remittances out of investments and insurance are expected to be. Gender effects are typically included by using a standard dummy variable for the sex of the sender. The results are not clear-cut. However, in many cases, lower remittances are reported for women than for men. The causes for this are usually not analyzed.

Nevertheless, taking traditional gender roles into account it can be assumed that the sex of a migrant generates gender-specific expectations concerning remittances. Usually, men are expected to remit more financial resources, while women are expected to remit more non-monetary resources.<sup>5</sup> The more general mainstream models of household and family behavior (Becker 1974, 1991) argue that household members act to improve the welfare of every

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<sup>4</sup> For an overview, see Rapoport/Docquier (2005).

<sup>5</sup> There is evidence that women remit more non-monetary and social remittances than men. Women more often remit food, clothes, and household items and also provide a greater variety of types of support (VanWey 2004). Despite the fact that we do not have sufficient data to prove this finding for Germany, this has to be considered when discussing and interpreting our results.

family member. However, since the distribution of economic power within a family has an influence on “family/household” decisions (Phipps/Burton 1995), the bargaining power within the international household differs by gender. In addition, the existence of traditional rights, social norms, access to property rights, as well as access to social security systems affects the gender-specific bargaining power within a household. More recent approaches consider the fallback position of the individual member of the household in cases of noncooperation (Agarwal 1997, Braunstein/Folbre 2001).

Within the theoretical framework presented above, migration costs play a critical role, and these transaction costs are usually treated as exogenous. However, it is known from the huge body of sociological literature that migration costs tend to decrease with the size of the network of migrants from the home country in the destination country. In addition, recent studies argue that only a small proportion of migrants settle permanently in the destination country and assimilate into the new culture (Lucassen 2006, Morawska 2002). Furthermore, a large part of migration is circular (Constant/Zimmermann 2007).<sup>6</sup>

Up to now, the link between transnational activities, remittances, and integration into the economy of the destination country has inspired very few theoretical studies (Feist 2000, Morawska 2002). In particular, the analysis of linkages between networks, migration, remittances, and gender roles is a fairly new branch of the research (Ramirez 2005). Remittances paid to close family members such as parents and children might depend on the legal framework in the home country. These payments are indeed “contractual.” Remittances made to other relatives can be interpreted as insurance payments. The insurance premium is the amount of remittances paid to the home country to avoid social exclusion and income risk in times of return migration. In contrast, payments to friends can be understood as investments in networks and personal transnational life.

The propensity to remit money to different network members in the home country might differ by gender. On the one hand, this might be due to the fact that men and women fulfill different functions in a cross-border network. On the other, women typically have lower financial resources to remit on average. This is often caused by differences in labor market participation (and opportunities to launch a successful career). Since the existing literature on remittances focuses on financial flows, women are likely to show lower remittances than men. In addition, the existence of traditional gender roles leads to differences in remittance

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<sup>6</sup> Transnationalism—with respect to migration—refers, from our perspective, to migrants who are constantly involved in cross-border economic, socio-cultural, and political activities (Bash/Glick-Schiller/Blanc-Szanton 1994). Thus, relations between the destination country and home country are forged and sustained to maintain ties or cope with experiences in the country of destination, although differently for men than for women (Itzigsohn/Giorguli-Saucedo 2005).



patterns. Traditionally, men are mainly responsible for the financial support of the family (“male breadwinner model”). At the same time, women are responsible for unpaid household and family work. In the modernized breadwinner model, women not only take care of the household, children, etc., but also obtain their own monetary earnings on the competitive labor market (part-time work).

### 3 Hypotheses, Data, and Empirical Models

About seven million foreigners and many more individuals with a migration background currently live in Germany. We expect that **foreigners and Germans with migration backgrounds** have different remittance patterns due to their different degree of integration to German society and the resulting differences in their legal status in Germany. Citizenship increases the chances of migrants remaining in the destination country and also fosters family reunification. Focusing the analysis solely on the remittance behavior of the broad group of migrants would not enable us to disentangle these effects. The SOEP data allows us to distinguish between foreigners and Germans with a migration background. The latter are defined here as Germans who were not born with German citizenship.

Primarily we want to explain the determinants of remittances. Consequently our **dependent variable** is the (natural log of the) annual “**amount of remittances**.” Since we focus here on the determinants of the amount of remittances, which are defined as individual cross-border transfers by foreigners or migrants, the retrospective question in the SOEP questionnaire is crucial: *“Have you personally provided payments or support during the last year (2001) to relatives or other persons outside of your household? How much in the year as a whole? Where does the recipient live? In Germany or abroad?”*<sup>7</sup> All participants are asked to state whether they transferred money to their (step-)parents, (step-)children, (ex-)spouse, or other relatives or non-relatives. If they did not make transfers to any of the above individuals, they check the box: *“No, I have not given any payment or support.”* Their answers provide individual information not only on the frequency of transfers to certain people but also on the amount transferred.

Further, the German Socio-Economic Panel (SOEP) study provides data on private households and individuals. In this survey, participants answer a broad range of questions concerning their socio-economic status, their demographic characteristics, as well as their

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<sup>7</sup> For details see: [http://www.diw.de/en/diw\\_02.c.222729.en/questionnaires.html](http://www.diw.de/en/diw_02.c.222729.en/questionnaires.html)

integration into the country of destination and family and friendship networks in both destination and home country. We are thus able to utilize information not only on the recent social status of the migrant and foreigner in the destination country but also on the existing networks in the home country. As **standard explanatory variables** we employ (see Appendix/Table A for description):

*Age:* According to the theoretical literature, the age of the remitter plays a positive role. Therefore, we expect a positive sign of the variable age.

*Marital status:* With a spouse in the home country, the need to remit money usually increases. Several empirical studies come to the conclusion that married migrants send larger amounts of remittances abroad (Merkle/Zimmermann 1992, Sinning 2007). Therefore, we expect a positive sign of this dummy variable.

*Education:* The value of the migrant's human capital is reflected in years of education. According to theoretical models that rely on altruism as well as on intra-family investment schemes, better education leads to higher transfers and compensates the society of the home country for the brain drain. Therefore a positive sign is expected here.

*Income:* To capture the influence of the migrant's income, we use monthly individual labor income data. In addition, to capture the income of other family members, we subtract the individual labor income from the household income and construct the net equivalent family income by taking scale effects into account.<sup>8</sup> According to the theoretical literature, remittances increase with the migrant's per capita income. This finding is reported in all microeconomic models. Therefore, we expect this variable to show a positive sign for the personal labor income of the migrant and foreigner.

*Household size in Germany:* One important determinant of the amount of remittances is the size of the migrant's household in the destination country. The more members of the household live in Germany, the more Germany can be considered the locus of family life. Therefore, and in line with the theoretical models and empirical findings, we assume that the amount of remittances decreases with increasing numbers of members in the migrant's household in Germany.

*Relative duration of stay:* The variable "relative duration of stay" is constructed as "years in Germany divided by age" and reflects the influence of the years spent in Germany on

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<sup>8</sup> The net family equivalent income was constructed to tackle the scale effects in a household with more than one person (OECD equivalent scale). Consider a net income of 1,000 euros and a household consisting of four persons: two adults and two children. Here, the net household equivalent income is calculated by taking the factor 1 for the first adult, the factor 0.5 for the second and the factor 0.3 for each child. In sum we get 2.1. Now the net household income is divided by this sum, so we get a net household equivalent income of 476.19 euros, which is a per capita value.

remittances. The variable ranges between 0 and 1 and takes the value of 1 if the migrant has spent his or her entire lifetime in Germany. This variable can be taken as a proxy for the influence of the duration of the stay in Germany (relative to the age of the migrant). According to the construction of the variable, we expect a negative sign, which is in line with the findings from several previous empirical studies showing that remittances decrease with the length of the stay abroad.

*Remigration plans:* In addition, the migrant's plan for return migration may influence the decision on remittances. Fortunately the SOEP data enable us to check for this. We assume that personal remigration plans are strongly linked to social networks abroad. Remittances are one important tie between the migrant and his or her social network in the home country. We therefore expect a positive sign in the case of future return migration plans.

In addition to these standard variables, we check for the influence of **social networks** in the home country. For those born outside of Germany and those without German citizenship, we obtain valid information on their network outside of Germany (relatives in the home country) with the question: "*Do you have close relatives who do not live in Germany?*" In our estimation, this information is captured in dummy variables stating whether or not one has relatives of an older generation (parents/grandparents), younger generation (children), the same generation (siblings), or other relatives or non-relatives living abroad.

However, the main focus of the analysis is on **gender** differences in remittance behavior. Existing case studies on different countries that take gender dimensions into account provide contradictory and complex results on the determinants of remittances (Amuedo-Dorantes/Poso 2006). While Lucas and Stark (1985) found in their seminal work on remittances that women show a higher probability to remit, more recent studies have produced the opposite finding. In the first, we explain the determinants of the amount remitted, employing several standard explanatory variables. Here we use a dummy variable to check for a gender effect. The variable "gender" is 1 in the case of a female remitter and 0 in the case of a male remitter. In the second step, we estimate separate models for men and women including the variables on social networks, and the third step shows gender interaction effects.

We expect that these effects vary by residence status in Germany: namely, by whether or not the migrant holds German citizenship. We argue that the (expected) monetary remittance power of men is higher than that of women. Due to the traditional male role as the main breadwinner of the family, men are more likely to be responsible for supporting the family financially in the home country—while women are more likely to be responsible for the non-

monetary support. Gender differences should therefore be most visible in networks of major importance—namely, if children are living abroad.

We expect that the gender (female) impact on remittances differs between migrants with foreign citizenship ('foreigners') and migrants with German citizenship ('Germans with migration background'). First, foreigners are more likely to have dependent children in their home country than migrants with German citizenship. They are also likely to have a larger number of children in their home country. Second, it is more difficult for foreigners than for Germans to bring dependent family members to the destination country, and foreigners are more likely to return to their family in the home country. Third, Germans with migration background are often second- or third-generation migrants—born in Germany with foreign citizenship.

The pooled data set for the years 2001-2006 contains 10,198 observations of foreigners and 9860 observations of Germans with migration background. About 14 percent of the sample is comprised of immigrants, of whom 52 percent are foreigners. Women make up about 48 percent of the foreigners and 57 percent of Germans with a migration background.

Because not all immigrants remit, the data set contains many zeros. To deal with this issue, in analyzing the determinants of the amount of remittances, we perform estimations of Tobit models, which enable us to analyze the determinants of the positive amount in relation to socio-economic variables. For all panel models, Hausman statistics were calculated to test the choice between random and fixed effects models. Although random effects models do not control for omitted characteristics of the individuals, our objective was to include stable covariates such as family network.

## 4 Empirical Results

Before turning to remittance behavior, we first analyze the basic motivation behind migration to Germany. We focus on the basic question of whether remitting money forms a crucial motivation behind the decision to migrate. In contrast to standard studies (The World Bank 2008a), we find that remittances are not the main driving force behind migration to Germany (Table 1).<sup>9</sup> Only eight percent of survey respondents say that “earning money and supporting family” was a major motivation for migration. We can therefore expect that standard theoretical models explaining remittances and migration by economic considerations cannot explain the determinants of remittances from Germany. Furthermore, since family reunification and the quality of life in Germany are important factors behind migration, theoretical models based on networks, integration, and capabilities may well explain remittances better than standard economic arguments.

**Table 1: Motivation to Migrate to Germany for All Migrants (in percent)**

	2001	2002	2003	2004	2005	2006
Family reunification	21	21	22	22	22	22
Better life	16	15	15	15	15	14
Just want to live in Germany	14	14	14	14	14	14
Live in freedom	13	14	13	13	13	13
Poverty in the country of origin	9	9	8	8	8	8
War in the country of origin	8	8	8	8	8	7
Earn money in Germany and support family (remittances)	8	8	8	8	8	8
Others	11	11	11	11	11	12
Sum	100	100	100	100	100	100
Total	2633	2393	2255	2183	2012	1890
Valid cases	1491	1348	1286	1257	1162	1071

Note: Unweighted, multiple responses

Source: 2001-2006 SOEP, authors' calculations.

Since remittances are not at the core of the migration decision, it is not surprising that not all migrants are “sending money home.” About 14 percent of all observations (for the years 2001-2006) state that they provided payments or support to family and friends in and outside

<sup>9</sup> First-time respondents have to answer the question “There are many possible reasons for moving to Germany. Which of the following reasons played a role in your decision?” in the Biography Questionnaire (see Goebel/Böckenhoff 2009). Answer categories include: “I wanted a better life: I wanted a better home, to be able to buy more, etc, I wanted to work and earn money in Germany in order to support my family and save money, I wanted freedom, I wanted to live with my family (spouse, parents, children), There was severe poverty in my native country, I could not live in safety in my native country (persecution, war), I just wanted to live in Germany.”

Germany. Thirteen percent (N=2626) of these individuals send money to friends and family abroad. Thus, on average, 8 percent of the Germans with a migration background and 11 percent of the foreigners send money home each year. Table 2 provides some basic information about the average annual amount remittances sent by men and women. All in all, the average sum of monetary remittances increased over time. This finding is fully in line with macro data on remittances. The highest growth was reached in the group of male foreigners. In 2006, the average amount remitted by this group was as twice as high as in 2001 and accounted for more than 3,200 euros. In general, foreigners remit more money than migrants, which might be due to the higher pressure on them for return migration. The finding holds true for both women and men. However, in both groups—foreigners and migrants—women remit less money than men. In 2006, the average amount remitted by foreign women accounted for only 50 percent of the average amount remitted by foreign men.

**Table 2: Average Remittances per Year (in euros)**

	<b>Mean</b>		<b>Median</b>	
	<b>2001</b>	<b>2006</b>	<b>2001</b>	<b>2006</b>
<i>Germans with migration background</i>				
Women	1066	1456	767	500
Men	1529	2331	1022	1000
<i>Foreigners</i>				
Women	1247	1705	1022	950
Men	1565	3234	1022	1500

Note: Persons older than 18 years living in private households; weighted mean.

Source: 2001-2006 SOEP, authors' calculations.

The fact that a person remits money can be interpreted as an indicator of the existence of personal ties to the home country. However, what determines the amount of remittances? Here, we proceed in several steps. First, we estimate the “core” equation, which answers the question of how important the standard variables are in general. In doing so, we check for the importance of the variable a dummy variable “gender” (Model a). Second, since we want to obtain further insights into network effects and gender-specific differences in remittances, we estimate an extended equation (Model b). In addition, we estimate Model b separately for males and females. Third, and most important, we introduce interaction terms and check for gender differences in the explanatory variables (Model c). All the models are estimated separately for foreigners and Germans with a migration background (Tables 3, 4, 5).

#### *4.1 The Core Model*

Table 3 presents the results of the “core” model in the two cases: foreigners and Germans with a migration background. Focusing on the group of foreigners, our central findings from Table 2 are confirmed: women remit significantly less money than men. Remittances increase with the age of the migrant. Being married and planning to re-migrate lead to significantly higher remittances. Education has a positive impact on remittances. The same holds true for higher individual and household income. The household size in Germany has a negative impact on remittances. With the relative duration of stay, remittances decrease, while remigration plans lead to higher remittances. All in all, the results reported support the view that remittances can be at least partly considered as a tool for international insurance and risk diversification. These basic findings are totally in line with the existing literature on remittances from Germany (Merkle/Zimmermann 1995, Oser 1995, Sinning 2007).

Turning now to Germans with a migration background, we find several differences in the determinants of remittances. Here, we cannot report a significant gender effect on remittances. In addition, household size in Germany and household income have no significant effect on remittances.

**Table 3: Determinants of the Amount of Remittances<sup>1</sup>: Core Model (Model a)**

	<b>Foreigners</b>	<b>Germans with migration background</b>
Age	0.391*** (3.96)	0.310*** (3.66)
Age Squared	-0.005*** (4.46)	-0.003*** (3.31)
Gender (Female=1)	<b>-0.998*** (2.79)</b>	<b>-0.392 (1.02)</b>
Marital Status (Married=1)	1.884*** (3.70)	2.299*** (4.32)
Education (in Years)	0.119* (1.67)	0.275*** (3.34)
Monthly Individual Labor Income <sup>1</sup>	0.544*** (9.48)	0.272*** (4.30)
Monthly Net Equivalent Family Income <sup>2</sup>	0.294** (2.37)	0.037 (0.26)
Household Size in Germany	-1.075*** (7.54)	-0.177 (1.31)
Relative Duration of Stay	-6.339*** (7.49)	-7.979*** (7.29)
Remigration Plans (yes=1)	1.141*** (3.49)	2.195*** (3.38)
Constant	-14.250*** (5.85)	-16.434*** (7.25)
Observations	6369	3699
Persons	1514	1104
Log Likelihood	-4410.15	-3069.47

1 ln; 2 ln of monthly net equivalent family income minus individual's labor income.

Note: Control variables not reported here are: imputation flags for individual labor income and family labor income.

Absolute value of z statistics in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Source: SOEP, 2001-2006, authors' calculations.

#### *4.2 Network effects*

Now we check for the explanatory power of transnational (family) networks. Table 4 clearly reveals that networks are important for both groups: foreigners and Germans with a migration background. However, again, the effects of the different network variables on remittances vary. Focusing on foreigners, it becomes clear that having a spouse and/or children and/or other relatives abroad has a positive impact on the amount remitted. We also find that age and



personal remigration plans are no longer significantly related to the amount of remittances. In addition, after controlling for network effects, the gender variable loses explanatory power but remains weakly significant (at the 10 percent level), indicating that the existence of a transnational network can explain some—but not all—of the gender differences in the decisions to remit money. Higher education only leads to higher remittances in the case of women. However, the most important difference between the gender groups seems to be the impact of having remigration plans. While in the case of male migrants, migration plans lead to higher remittances, the reverse holds true for female migrants. This is an interesting finding that can be interpreted in the context of gender-specific bargaining power differences in the country of origin. For remittances to operate as investment and insurance systems, they need to be governed by property rights. Until recently, there has been a gender gap in access to property rights in many migrants' home countries. From this point of view it is rational for female foreigners to secure direct personal access to financial resources in the case of remigration through lower financial remittances. Having children and/or spouses abroad is correlated with higher remittances by women—the influence of other network variables is insignificant. In contrast to this, remittances by men are influenced by a broader network. However, it is a common finding that having parents or grandparents abroad, does not lead to higher remittances either in the case of foreign men or in the case of foreign women.

Again, different patterns can be detected in the case of Germans with a migration background. All standard variables in the core model remain significant. In addition, having parents, children, siblings, other relatives, and friends abroad leads to significantly higher remittances. Due to low case numbers of spouses abroad in the group of Germans with migration background, these results are not displayed. As outlined above, for Germans with a migration background, family reunification in Germany is comparably easy, and spouses are usually already in Germany. Women send more money home if children, siblings, other relatives and/or friends live abroad. Having parents living abroad leads to higher remittances only in the case of men; however, in this case, having friends abroad no longer has a positive impact on remittances. Basically, it can be said that there are gender-specific remittance patterns, especially concerning transfers to the elderly and to a broader network of friends.

**Table 4: Determinants of the Amount of Remittances<sup>1</sup>: Network Model (Model b)**

	Foreigners		Germans with migration background	
	Women	Men	Women	Men
Age	-0.024 (0.14)	0.256 (1.47)	0.230* (1.81)	0.179 (1.49)
Age Squared	-0.001 (0.43)	-0.004* (1.92)	-0.002* (1.65)	-0.001 (1.16)
Marital Status (Married=1)	2.584** (2.56)	1.997** (2.24)	1.843** (2.40)	1.179 (1.45)
Education (in Years)	0.406*** (3.24)	0.147 (1.18)	0.235** (2.04)	0.204 (1.47)
Monthly Individual Labor Income <sup>1</sup>	0.623*** (5.77)	0.500*** (4.94)	0.071 (0.80)	0.571*** (5.23)
Monthly Net Equivalent Family Income <sup>2</sup>	0.136 (0.48)	0.234 (1.29)	0.313 (1.23)	-0.097 (0.57)
Household Size in Germany	-1.12*** (4.09)	-0.844*** (3.41)	-0.296 (1.33)	-0.202 (1.13)
Relative Duration of Stay	-5.431*** (3.15)	-4.982*** (2.99)	-11.378*** (6.00)	-9.580*** (4.76)
Remigration Plans (yes=1)	-1.668** (2.49)	1.057* (1.84)	0.376 (0.33)	3.060*** (2.93)
<b>Network Abroad</b>				
(Grand)Parents Abroad (yes=1)	0.643 (0.75)	0.111 (0.15)	0.533 (0.75)	1.325* (1.79)
Children Abroad (yes=1)	3.420*** (3.58)	5.017*** (5.78)	2.080* (1.81)	2.149** (2.21)
Spouse Abroad (yes=1)	7.087** (2.53)	4.820*** (2.98)	too few obs.	too few obs.
Siblings Abroad (yes=1)	0.070 (0.09)	-0.132 (0.20)	1.990*** (2.90)	1.678** (2.39)
Other Relatives Abroad (yes=1)	0.658 (0.99)	1.680** (2.56)	1.291* (1.94)	1.530** (2.38)
Friends Abroad (yes=1)	-0.969 (0.98)	1.480 (1.41)	1.915** (2.26)	0.898 (1.08)
Constant	-9.167** (2.29)	-13.048*** (3.30)	-15.703*** (4.44)	-13.411*** (4.19)
Observations	1633	1538	1763	1526
Persons	409	407	528	459
Log Likelihood	-1181.36	-1349.74	-1381.02	-1285.72

1 ln; 2 ln of monthly net equivalent family income minus individual's labor income

Note: Control variables not reported here are: imputation flags for individual labor income and family labor income

Absolute value of z statistics in parentheses;

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

SOEP, 2001-2006, authors' calculations.

### 4.3 Gender-Specific Effects

Do our findings also mean that the amount remitted depends significantly on gender-specific patterns? To answer this question, we add gender interaction terms for the variables of interest (Table 5). Looking at the two groups of foreigners and Germans with a migration background, we can identify different social network effects on the amount of remittances.

**Table 5: Determinants of the Amount of Remittances<sup>1</sup>:  
Gender Interaction Terms (Model c)**

	Foreigners	Germans with migration background
Relative Duration of Stay*Female	-0.044 (0.02)	0.339 (0.14)
Remigration Plans*Female	-2.696*** (3.08)	-2.528* (1.65)
(Grand)Parents Abroad*Female	0.276 (0.26)	-0.807 (0.79)
Children Abroad*Female	-2.014* (1.67)	-0.244 (0.16)
Spouse Abroad*Female	1.659 (0.52)	too few obs.
Siblings Abroad*Female	0.150 (0.15)	0.253 (0.26)
Other Relatives Abroad*Female	-0.920 (1.00)	-0.443 (0.48)
Friends Abroad*Female	-2.245 (1.57)	0.855 (0.72)
Constant	-11.447*** (3.39)	-14.153*** (4.74)
Observations	3171	3289
Persons	816	987
Log Likelihood	-2535.34	-2673.39

1 ln; 2 ln of monthly net equivalent family income minus individual's labor income.

Note: Variables included but not reported here are those in model b (table 5). See the appendix for full results of model c.

Control variables not reported are imputation flags for individual labor income and family labor income.

Absolute value of z statistics in parentheses;

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Source: SOEP, 2001-2006, authors' calculations.

First, we see for foreigners and Germans with migration background who have remigration plans that women remit less money than men. This result might again be due to gender-specific differences in property rights in the migrant's home country. Second, and at a glance,

it might be confusing that in the case of foreigners with children abroad, women remit significantly less money than men. How can this be explained? We employ traditional gender roles. It does seem likely that women have a lower probability than men to leave a child at home. In addition, we have to keep in mind that our dataset has some shortcomings concerning the information about relatives and friends living abroad. Thus, we do not have information about the number and age of the children left in the home country. Given traditional gender roles, it seems more likely that men with foreign citizenship would leave more children behind in the home country than women with foreign citizenship, especially if the children are small and dependent on parental care. It can also be assumed that women and men make use of their international social networks in different ways. At a glance, this is in line with the finding that women with siblings abroad remit significantly less money than men. However, in the group of Germans with a migration background, we find the reverse effect: women remit even more money than men if they have siblings abroad. All in all, these findings indicate that the relative position of the migrant within the transnational family and his and her social integration seem to play an important role in remittances.

## **5 Conclusions**

Our findings show, above all, that gender and social integration play a strong role in remittance behavior. They also show clear gender-specific patterns of remittances. In addition, the study underlines the hypothesis that one important motivation for remittances might be the existence of transnational (family) networks. We have shown that female foreigners tend to send less financial support to their children than male foreigners. This finding seems confusing at first, but gender-specific roles may help to explain it. First, women are probably less likely than men to leave a child behind in the home country. Consequently foreign women in Germany presumably have a smaller number of (dependent) children to support in the home country on average than foreign men. Second, international studies on remittances show that women tend to remit non-monetary rather than monetary goods. Here we investigate only financial remittances. In sum, we have to be aware that our dataset has some shortcomings concerning the information about relatives and friends living abroad: we do not know how many children are left in the home country and we do not know how old they are.

We argue that the gender-specific differences in remittance behavior identified in this study are due to gender-specific migration patterns. The relative position of the migrant within the

transnational network is also of major importance, for example, whether the migrant is the major breadwinner for other family members living abroad. While gender equality has been given high priority on the EU policy agenda (European Union 2009), gender gaps in destination and source countries of migrants still exist in many areas, particularly in labor market participation. The labor supply decision has an impact on the individual's labor income, and in turn, on the possibility to remit. Yet focusing solely on international labor migration would lead to a comparison of gender-specific wages and wage differences between the migrant's destination and home country. Theoretically, this would make it appear that migration to Germany is more attractive for women than for men. Here, we focus on financial remittances. However, financial remittances are only one part of the overall flow of remittances: social remittances are also an important type of remittances.

This study can be considered a first step in the analysis of remittances from the perspective of gender economics. The analysis of linkages between the structure of transnational networks and gender-specific remittance behavior also shows a potentially interesting direction for future research. One natural extension of this paper would be a more in-depth investigation of the social determinants of remittances, possibly linking the social networks literature to the economic literature on remittances. Such a study should analyze how the quality of the transnational network influences the decision to remit. In addition, deeper investigation of the potential gender-specific motivations of migrants might be possible using the tools of experimental economics (Fehr/Fischbacher/Rosenbladt/Schupp/Wagner 2002).

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## Appendix

<b>Table A: Definition of Variables</b>	
Variable (Characteristics of the respondent)	description
Amount of Remittances	annual amount of payments to relatives or other persons not living in household (in euros)
ln (Amount of Remittances)	natural log of annual amount of payments to relatives or other persons not living in household (in euros)
Foreigners	migrants without German citizenship
Germans with Migration Background	persons born without German citizenship who received German citizenship later (incl. ethnic Germans)
Age	age of person
Age Squared	age of person squared
Gender	1 if person is female, 0 otherwise
Marital Status	1 if person is legally married, 0 otherwise
Education	number of years person spent on schooling
(ln) Monthly Individual labor Income	natural log of annual net individual labor income divided by 12
(ln) Monthly Net Equivalent Family Income	natural log of annual net household income minus annual net individual labor income; divided by 12; weighted by OECD equivalent scale
Household Size	number of persons living in household in Germany
Relative Duration of Stay	duration of German residence in years divided by age
Remigration Plan	1 if immigrant wishes to return to the country of origin; 0 otherwise
(Grand)Parents Abroad	1 if (grand)parents of immigrant live abroad (outside Germany), 0 otherwise
Children Abroad	1 if children of immigrant live abroad (outside Germany), 0 otherwise
Spouse Abroad	1 if the spouse of the immigrant lives abroad (outside Germany), 0 otherwise
Siblings Abroad	1 if siblings of immigrant live abroad (outside Germany), 0 otherwise
Other Relatives Abroad	1 if other relatives than (grand)parents, children or siblings of immigrant live abroad (outside Germany), 0 otherwise
Friends Abroad	1 if friends of immigrant live abroad (outside Germany), 0 otherwise

**Table B: Network and Gender (dependent variable: annual amount of remittances)**

	<b>Foreigners</b>	<b>Germans with migration background</b>
Age	0.200*** (2.84)	0.204** (2.27)
Age Squared	-0.002*** (2.93)	-0.002** (1.98)
Gender (Female=1)	0.632 (0.78)	-0.260 (0.07)
Marital Status (Married=1)	1.518** (2.50)	1.207 (1.43)
Education (in Years)	0.104 (1.13)	0.203 (1.40)
Monthly Individual Labor Income <sup>1</sup>	0.571*** (7.70)	0.582*** (5.16)
Monthly Net Equivalent Family Income <sup>2</sup>	0.086 (0.67)	-0.106 (0.59)
Household Size in Germany	-0.426*** (2.85)	-0.205 (1.08)
Relative Duration of Stay	-7.892*** (6.76)	-10.758*** (5.34)
Remigration Plans (yes=1)	1.056** (2.17)	3.111*** (2.81)
<b>Network Abroad</b>		
(Grand)Parents Abroad (yes=1)	0.691 (1.40)	1.321* (1.71)
Children Abroad (yes=1)	3.762*** (6.00)	2.228** (2.19)
Spouse Abroad (yes=1)	4.432*** (3.02)	too few obs.
Siblings Abroad (yes=1)	0.726 (1.50)	1.651** (2.26)
Other Relatives Abroad (yes=1)	1.624*** (3.51)	1.673** (2.51)
Friends Abroad (yes=1)	1.420** (2.15)	0.938 (1.08)
<b>Interaction Terms</b>		
Age*Female	-0.014 (0.32)	-0.009 (0.25)
Married*Female	0.208 (0.16)	0.709 (0.65)
Education*Female	0.232 (1.33)	0.029 (0.16)
Individual Labor Income*Female	0.034 (0.25)	-0.508*** (3.72)
Family Income*Female	-0.139 (0.42)	0.385 (1.29)

....Table B continued

Household Size*Female	-0.267 (0.76)	-0.073 (0.26)
Relative Duration of Stay*Female	-0.044 (0.02)	0.339 (0.14)
Remigration Plans*Female	-2.696*** (3.08)	-2.528* (1.65)
(Grand)Parents Abroad*Female	0.276 (0.26)	-0.807 (0.79)
Children Abroad*Female	-2.014* (1.67)	-0.244 (0.16)
Spouse Abroad*Female	1.659 (0.52)	too few obs.
Siblings Abroad*Female	0.150 (0.15)	0.253 (0.26)
Other Relatives Abroad*Female	-0.920 (1.00)	-0.443 (0.48)
Friends Abroad*Female	-2.245 (1.57)	0.855 (0.72)
Constant	-11.447*** (3.39)	-14.153*** (4.74)
Observations	3171	3289
Persons	816	987
Log Likelihood	-2535.34	-2673.39

1 ln; 2 ln of monthly net equivalent family income minus individual's labor Income.

Note: Control variables not reported here are imputation flags for individual labor income and family labor income.

Absolute value of z statistics in parentheses;

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Source: SOEP, 2001-2006, authors' calculations.